Cool Sense Motion Cooling System

Features & Benefits

- Reduce heat stress on dairy cattle and increase milk production with cooling showers.
- Control the amount of water used by adjusting the shower time.
- Two types of shower directions available–unidirectional and bidirectional showering.
- Controller is easy and quick to program.
- Easy and economical to install and operate–quick return on investment.
- Two-year factory warranty on controller.
- Minimize wasted water.
- Adapts to various lane widths and barn configurations.

Description

The Cool Sense motion cooling system is an effective and efficient way of keeping dairy cattle cool when the temperature rises. Cooling is achieved by automatically showering dairy cows with a coarse droplet shower as they exit milking parlors and return to freestall barns. Showering cows immediately after milking helps reduce heat stress, which in turn increases their feed and water consumption and milk production.

The Cool Sense controller activates a shower when the temperature probe detects an air temperature above the customer-configured actuation temperature and the dual motion sensors detect motion. The cows are then showered as they walk under the manifold nozzles. After a cow moves through the showering area, the water begins evaporating from the skin and pulls heat away from the animal, thus cooling it.

There are two types of showers on a Cool Sense system, unidirectional shower and bidirectional showering. Unidirectional showering consists of one manifold that disperses water in one direction, while bidirectional showering has two manifolds that disperse water in opposite directions.

Front View and Dimensions

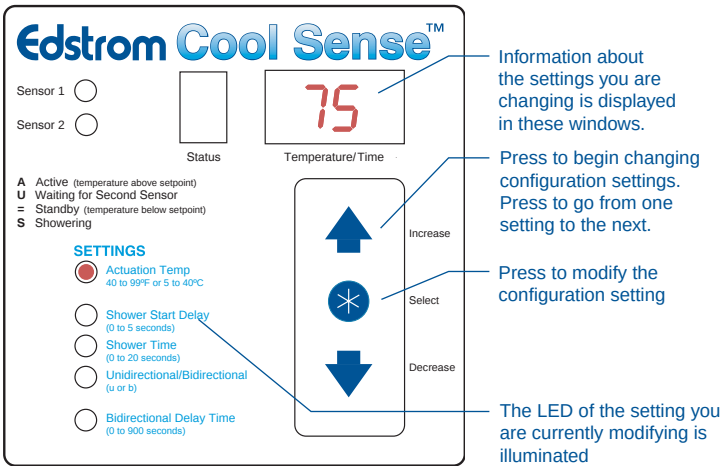

Figure 1–Modifying configuration settings on the Cool Sense controller.

Application/Operation

The Cool Sense controller regulates the shower time, and on bidirectional systems, determines the direction of the water flow through the cooling system and initiates showers from the corresponding manifold based on input from the motion sensors. The controller works in conjunction with one temperature probe, one or two solenoid valves, one or two shower manifolds, and two motion sensors to carry out a shower.

The temperature probe detects the air temperature in the facility's cooling lane. The probe should be positioned so it provides readings that are representative of the cooling lane area. Typically the probe is installed in the center of the cooling lane, away from objects that could significantly affect its readings, such as a fan or direct sunlight.

The motion sensors are mounted above the cooling lane to detect the motion of the cows. A red LED illuminates on the controller whenever the sensors detect motion. The range of the motion sensor field is determined by a diaphragm that is installed over the sensing lens inside the sensor cover. The diaphragm can be adjusted to create a larger or more precise sensing field. Attached to the sensors are customer-installed covers that protect the sensors from spraying water and direct sunlight.

The shower manifold contains two shower nozzles and a solenoid valve. The manifold should be mounted above the cooling lane to allow water to land on the cows traveling through the lane. A standard Cool Sense system comes with one shower manifold for dispersing water in one direction (unidirectional shower). A second shower manifold can also be mounted above the cooling lane to provide showering in the opposite direction (bidirectional shower).

Specifications

Part Number 7400-8941-100

Hardware

- Dimensions: 7.75 in. W x 7.5 in. H x 5.5 in. D [197 mm W x 190 mm H x 140 mm D]

Control Panel

- Enclosure: Solid, high-impact engineered thermoplastics
- NEMA 4X rating
- 7 segment high intensity LED characters
- Non-volatile, user programmable memory

Utility Requirements

- Input Power: 120 VAC ± 10% 60 Hz 0.25 Amp
- Relay Output Power: 24 VAC ± 10% 0.8 Amp inrush (19VA) 0.57 Amp steady state (14VA)

Operational Parameters

- Operating Temperature Range: 0°F to 122°F
- Programmable Ranges:
  Temperature: 40°F to 99°F [5°C to 40°C]
  *Shower Start Delay: 0 to 5 seconds
  *Shower Time: 0 to 20 seconds
  *Programmable in 0.1 second increments
  Bidirectional Delay Time: 0 to 900 seconds

All specifications are subject to change without notice.

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